

### ABSTRACT OF THE DISCLOSURE

A method of and an arrangement for transmitting electric current to a furnace that is heated, either completely or partially, by electric current conducted in the furnace wall. The current is conducted through electrically conductive devices connected to the furnace wall. At least one of the devices in proximity to the furnace wall includes a section that has a smaller cross-sectional area than the remainder of the device. The current flow through the smaller cross-section develops heat in the region of the smaller section of a magnitude that corresponds substantially to the heat magnitude that would have been conducted from the furnace wall to the electrically conductive device in the absence of the smaller cross-sectional area.